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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,929	03/04/2002	Toshiki Kubo	113197-024	6727

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EXAMINER

MEYER, DAVID C

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/090,929

Applicant(s)

KUBO ET AL.

Examiner

David C. Meyer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Tokumaru et al (US 5,611,015).

Regarding claim 1, Tokumaru et al discloses an apparatus for splicing polarization-maintaining optical fibers. The apparatus executes a method whereby the angular disagreement between the planes of polarization of two polarization-maintaining optical fibers 2,7 may be ascertained and corrected. In the operation of the apparatus, an LED 3 irradiates a lateral side of the optical fibers 1 and 2. Two patterns of luminance peaks are transmitted corresponding to the respective polarization planes of the two optical fibers. A camera 4 captures the patterns and sends a corresponding electrical signal to an image processing unit 5. The image processing unit calculates the positions of the luminance peaks and generates numerical values C and D to reflect them. A display 6 displays the luminance peaks for each fiber as well as the numerical values C and D. A user may manipulate dials 23,24 until the polarization planes of the two optical fibers are aligned, as evidenced when the values C and D are equal. The step of estimating the amount of angular disagreement between the planes of polarization of the two polarization-maintaining optical fibers is performed by a user,

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who bases her estimation on the values C and D as generated by the image processing unit. (See Figs. 1A, 1B, 2, 3, 4, and 7 as well as column 3, line 7 to column 5, line 11.)

Regarding claim 3, Tokumaru et al discloses that after the values C and D are set equal to each other (via manipulation of dials 23 and 24) "the polarization-maintaining optical fibers 1 and 2 are fused, thereby splicing the optical fibers such that their optical axes coincide." (See column 5, lines 8-11.)

Claim Rejections - 35 USC § 103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tokumaru et al (US 5,611,015). Tokumaru et al does not disclose the steps of irradiating light onto the fibers *after* they have been joined. However, the motivation for performing this step

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is easily provided. Although a user would not be able to reorient the respective polarization axes of the connected fibers following the connecting step, she would be able to estimate the amount of angular disagreement between the two fibers' respective polarization axes based, as before, on the numerical values C and D generated by the image processing unit 5. This functionality is desirable and obvious from the standpoint that it enables a user to evaluate whether a connecting step was performed successfully. Based on the foregoing, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tokumaru et al by irradiating light onto the fibers after a connecting step in order to facilitate the evaluation of the connecting step's success.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tokumaru et al (US 5,611,015) in view of Feth et al (US 5,881,185). Tokumaru et al does not disclose a method for connecting two optical fibers such that the orientation angle between their respective polarization axes is a non-zero predetermined angle. However, in some applications it is desirable to depolarize light traveling within an optical fiber by means of a fiber section having a polarization axis that is oriented at a non-zero angle with respect to the polarization axis of another fiber section. Feth et al discloses a method for fabricating a depolarizer wherein first and second optical fibers are oriented such that the angle between their respective polarization axes is non-zero. (See Fig. 2, column 1, lines 14-35, and column 3, lines 6-15.) It would have been obvious to one of ordinary skill in the art at the time of invention to modify Tokumaru et al by using the apparatus to orient first and second optical fibers such that the angle between their

respective polarization axes is non-zero, in order facilitate use in settings where controlled depolarization is desirable and necessary.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 4 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the method of claim 2 can be used in a method for connecting two optical fibers, regardless of the orientation of the two fibers' respective polarization axes, considering that the first step of the method of claim 2 occurs "after the connection" of the two fibers. It is requested that the applicant clarify the intent of claims 4 and 6.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Michal et al (US 5,488,683) and Zheng (US 5,758,000) appear to disclose all the steps of claim 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Meyer whose telephone number is 703-305-7955. The examiner can normally be reached on M-F 8:30-5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 703-308-4852. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0935.

DCM
April 18, 2003



DAVID PORTA
SUPERVISORY PATENT EXAMINER
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